

(12) **United States Patent**  
**Okandan et al.**

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(54) **MICROSCALE AUTONOMOUS SENSOR AND COMMUNICATIONS MODULE**

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(57) **ABSTRACT**

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Various technologies pertaining to a microscale autonomous sensor and communications module are described herein. Such a module includes a sensor that generates a sensor signal that is indicative of an environmental parameter. An integrated circuit receives the sensor signal and generates an output signal based at least in part upon the sensor signal. An optical emitter receives the output signal and generates an optical signal as a function of the output signal. An energy storage device is configured to provide power to at least the integrated circuit and the optical emitter, and wherein the module has a relatively small diameter and thickness.

(51) **Int. Cl.**  
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(52) **U.S. Cl.**  
USPC ..... **320/107**

(58) **Field of Classification Search**  
USPC ..... 320/101, 103, 107, 112, 128; 324/426, 324/427

See application file for complete search history.

**20 Claims, 5 Drawing Sheets**

